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(54) **Sign box**

(57) The bottom edge of the front face of the top rail of the, or a, panel-carrying frame of a sign box is formed with an overhang 23 to encourage rain or condensation striking the front fŒce to drip off the overhang, rather than running onto and down the panel. A relatively shallow channel (26) may run along the top face 27 of the top rail to lead water off the top face of the panel-carrying frame. Where the box pivots open about the top back edge of the panel-carrying frame, the configuration of the mating fit between the panel-carrying frame and the main box frame is preferably such that any water attempting to find its way into the box through the pivot region is confronted with, in succession, an overhang on the turned-up pivoting edge flange 32 of the back face of the panel-carrying frame, and a resiliently deformable seal 36 compressed between the panel-carrying frame and the main box frame. A double-faced sign box and single-faced box are described and illustrated.

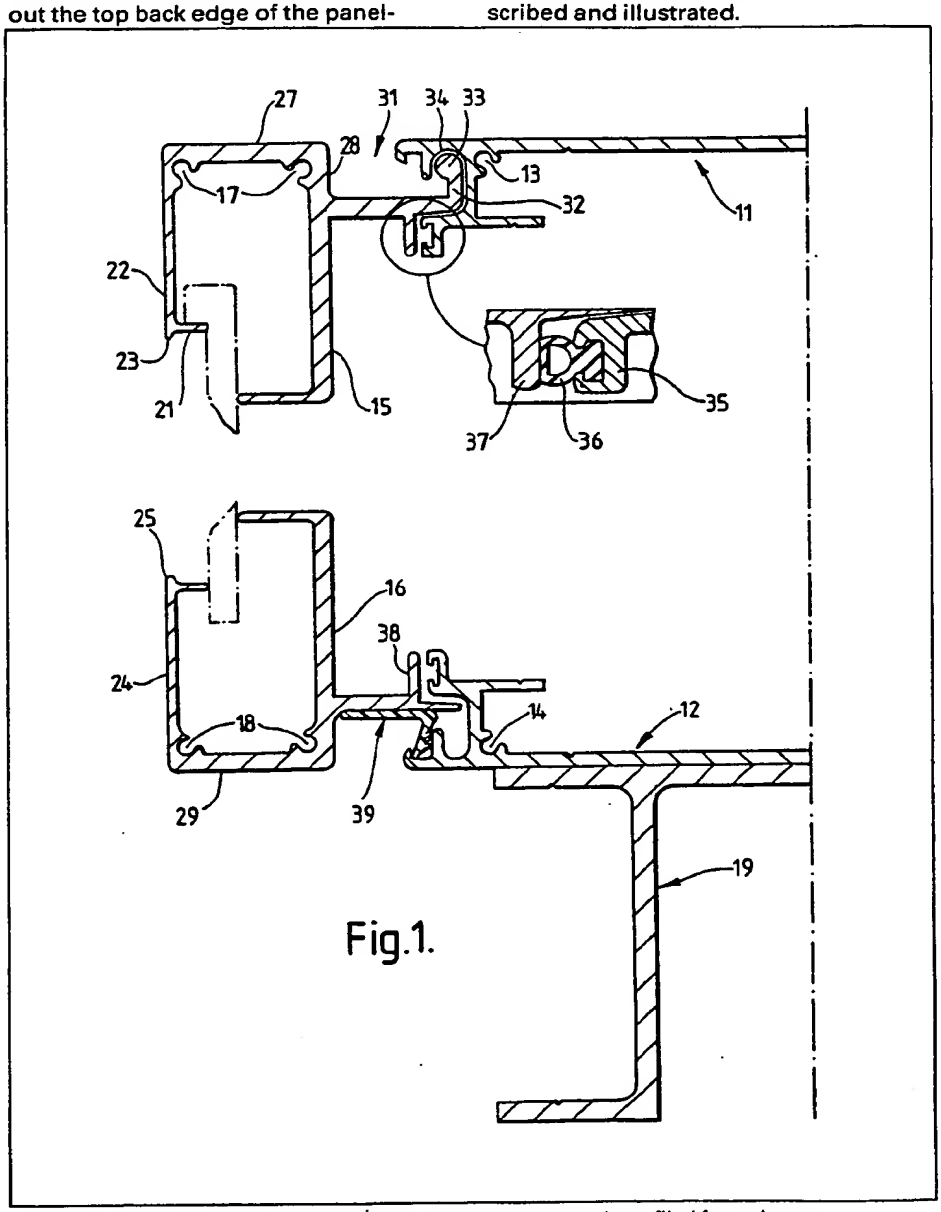

Fig.1.

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The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy.

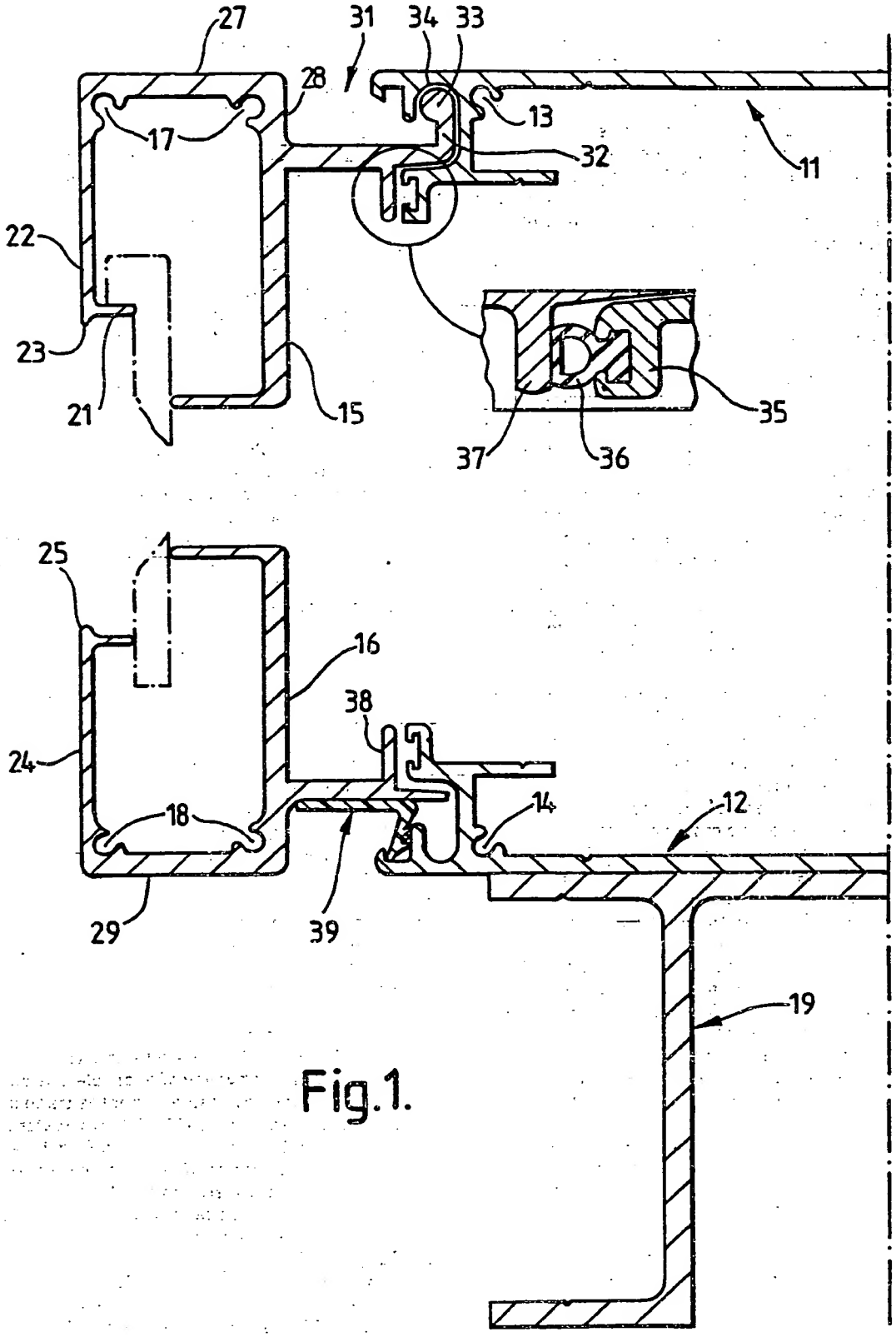

Fig.1.

around the entire periphery of the frame, because the frame rails are often cut from a continuous length of extruded aluminium section. Embodiments of the invention, shown in the accompanying drawings, have channels and drip overhangs extending around their frame peripheries. They will now be described with reference to the drawings, in which:

Figure 1 shows one half of a double-faced sign box incorporating drip overhangs, drainage channels, and latching strips;

Figures 1a, 1b and *1c* show respectively the details of the drip overhang, a top-face channel, and the latching strip of the box; and

Figure 2 shows a single-sided box embodying the invention.

Referring first to Figure 1, a sign box consists of a main box frame having extruded aluminium top and bottom rails referenced respectively 11, 12, to which side rails (not shown) are secured by self-tapping screws received in channels 13, 14; and two opposed panel-carrying frames, only one of which is shown, each similarly having a top rail 15 and a bottom rail 16 held between side rails (not shown) secured to the top and bottom rails by its self-tapping screws (also not shown) received respectively in channels 17, 18. The screw-receiving channels 13, 14; 17, 18 are moulded integrally into the rails which are themseles extruded from aluminium stock.

The main box frame and each of its panel-carrying frames, is rectangular in overall shape. Figure 1 shows only one half of an end elevation, sectioned, it being understood that the other half is a mirror image of what is shown in Figure 1.

The sign box is supported on a stand-off bracket 19 which is secured to the main box frame bottom rail 12 by conventional means. The bracket 19 has no significance in itself, and its design can safely be left to the man skilled in this particular field.

The panels which carry the advertising message of the sign will most probably be flat acrylic sheets. They are hung from a panel-supporting ledge 21 formed on the inside front face of the top rail 15 of the panel-carrying frame. Their positions are indicated approximately in chain line in Figure 1, and also in Figure 2, and again they do not form an inventive feature of the Figure 1 construction and their design will present no difficulty to the skilled man.

The bottom edge of the front face 22 of the top rail 15 of the panel-carrying frame of the sign box is formed with an overhand referenced generally 23. The top edge of the front face 24 of the bottom rail 16 of that frame is formed with an identical overhang 25, since both top and bottom rails 15, 16 are cut from the same length of extruded aluminium stock. The side rails, not shown, may similarly be formed with such an overhang. If this is done, the entire inner periphery of the front face of the panel-carrying frame will effectively be lipped by a peripherially continuous overhang.

The purpose of the overhang is to encourage rain or condensation striking the front face of the panel-carrying frame to drip off the overhang 23, rather than running on to and down the panel, when the sign is in use. Figure 1a shows that the overhang 23 is radiused around its edge, and is given an enlarged radius as it travels back in towards the panel and blends with the panel-supporting ledge 21 of the panel-carrying frame. In the particular example illustrated, the underside radius of curvature is approximately five times the edge radius of curvature of the overhang.

A channel 26 runs along the top face 27 of the top rail 15, i.e. along the region bounded by the front face 22 and back face 28 of the top rail. This channel 26 is relatively shallow. Its purpose is to lead water off the top face 27, and it may be continued down the outer faces of the side rails (not shown) of the panel-carrying frame; and also along the bottom face 29 of the bottom rail 16 if the top and bottom rails are cut from the same length of extruded aluminium stock.

The channel 26 acts in combination with the drip overhang 23 to lead rain or condensation off the panel-carrying frame rather than allowing it to run on to and down the panel itself, when the sign is in use. As Figure 1b shows, the front-facing edge of the channel 26 (i.e. the edge adjacent the front face 22 of the fame top rail 15) is right-angled; whereas the rear face of the channel (i.e. the face adjacent the back face 28 of the frame top rail 15) is radiused. The object is to channel water down the sides of the panel-carrying frame, and off the bottom of the frame, rather than encouraging it to flow off the top face 27 and down the front face 22 of the frame top rail.

A top-rail drainage channel 31, relatively deep in comparison with the channel 26, is also defined between the back face 28 of the top rail 15 of the panel-carrying frame, and the turned-up flange 32 which projects from the back face 28 to mate with the front of the main box frame top rail 11. The upturned edge 32 is formed with an overhang which takes the shape of a radiused edge 33. The edge 33 mates with a similarly-radiused recess 34 running inside the front of the main box frame top rail 11. Below the recess 34, an undercut channel 35 runs along the front of the main box frame top rail 11 and holds a resiliently deformable tubular seal 36 in place. The seal 36 can be selected from known alternatives, but by way of example one suitable seal is that currently available under the trade description Schlegel Finseal PB 48425-3FP. Any water entering the channel 31 and attempting to find its way from there into the interior of the sign box is thus confronted with, in sucession, the close mating fit of the joint 33, 34 and the seal 36 which is compressed between its holding channel 35 and an elongate flange 37 extruded along the back region of the panel-carrying frame top rail 15.

The bottom rail 16 of the panel-carrying frame has a flange 38, identical to the flange 37, extruded along its back region. The two side rails, not shown, of the panel-carrying frame continue this flange. The top, bottom and side rails of the main box frame also continue the seal-carrying channel 35. The deformable tubular seal 36 thus extends around the entire periphery of the main box frame and is compressed at all points along its length when the panel-carrying

SPECIFICATION

Sign box

The invention relates to sign boxes.

Sign boxes comprise essentially a main box frame closed by a panel-carrying frame or by two opposed panel-carrying frames. The or each panel carries the advertising message of the sign, whilst the box contains the projecting ends of the sign-supporting posts or alternatively houses the fixtures which secure the sign to a stand-off bracket or a wall. If the sign is an illuminated sign, the box will also contain the neon tubes, electrical leads and terminals, and may contain a reflector panel.

Signs which are big enough to warrant use of a sign box are usually mounted outside, frequently on the outside walls of buildings, and weatherproofing the sign box is a major problem. U.S. patents numbers 3,863,372 (Stilling) and 4,169,327 (Stilling) both describe and illustrate relatively complicated sign box constructions in which an attempt is made to seal the mating joint between the panel-carrying frames and the main box frame. The constructions shown in these two U.S. patent specifications use sophisticated and complex extrusions to form the frames, and they concentrate on providing a seal at the interface between the panel-carrying frame and the main box frame.

This interface must obviously be sealed in some way, but in practice it is found that a great deal of trouble is caused by rain striking the front face of the panel-carrying frame and then running down on to the panel and thence into the main box. The invention takes as its starting point the state of the art represented by these two prior U.S. patent specifications, and is based on the realisation that if some provision is made to keep rain away from the panel then the weatherproofing of the box as a whole can be significantly improved.

According to the broadest aspect of the invention, the bottom edge of the front face of the top rail of the, or a, panel-carrying frame of a sign box if formed with an overhang to encourage rain or condensation striking the front face to drip off the overhang, rather than running on to and down the panel, when the sign is in use. In this way, the weatherproofing of the box is improved, and the appearance of the panel is less likely to be disfigured by rain streaks.

This broad inventive concept is equally applicable to interior signs, which are less likely to be subjected to drastic changes in climate, but which are nevertheless sometimes at risk of being penetrated by excess condensation from the surrounding environment.

The overhang may be radiused around its edge, to promote dripping of rain or condensation off the edge rather than on to and down the panel.

The overhang may alternatively or additionally be radiused as it travels back in towards the panel, and blends with the panel-supporting ledge of the panel-carrying frame, for the same reason and also so that it will less readily harbour dirt on its underside.

A channel may run along the top face of the top rail, in the region bounded by the front and back faces of the rail, to lead water off the top face of the panel-carrying frame. Because such a channel acts in combination with the overhang, the channel need only be relatively shallow, and can be formed within the thickness of the top face rather than requiring a special additional extruded channel to be formed along or adjacent the top rail.

A top-rail drainage channel, positively relatively deep in comparison with the channel just discussed, may alternatively or additionally be defined beween the back face of the top rail of the panel-carrying frame, and the turned-up flange which projects on that face to mate with the front of the main box frame, the configuration of the mating fit between the frames being such that any water entering said drainage channel and attempting to find its way from there into the box is confronted with, in succession, an overhang on the turned-up edge of said flange, and a resiliently deformable seal compressed between the two frames. Compressed seals are themselves aleady in use, but the overhang on flange edge greatly increases the combined water resisting efficiency of the channel and the seal. Such an arrangement also lends itself especially well to a sign box having any of the features previously outlined as being within the scope of the invention.

In any arrangement falling within the preceding paragraph, the overhang on the flange edge may form part of a radiused edge which mates with a similarly-radiused recess running inside the front of the main box frame. This mating radiused fit again resists water. It also lends itself readily to a construction in which the panel-carrying frame can pivot open about the radiused edge, to give access to the interior of the box. The two U.S. patent specifications reviewed above show such constructions, but they do not show the feature of a radiused edge co-operating with a similarly-radiused recess, and they admit that the constructions they do show tend to be vulnerable when exposed to exterior weather conditions.

In any sign box in which the panel-carrying frame pivots open to give access to the interior of the box, a resilient latching strip may project from the back face of the bottom rail of the panel-carrying fame, to snap into engagement with a co-operating projection on the front of the main box frame when the two frames mate to close the box. The latching strip could be a continuous strip running along the bottom rail, or there could be several such strips individually spaced apart along the rail. The latch can readily be released to open the panel-carrying frame, and, if suitably ribbed or notched on its back surface, can prevent the panel-carrying frame from inadvertently snapping shut again before work on the interior of the box has finished.

Preferably the or each resilient latching strip is secured to the frame, rather than being formed integrally with it, since the frames are traditionally formed from aluminium whereas a plastics material, for example, can better achieve a secure but resilient latching action.

Any rain or condensation channel formed in a frame of a sign box will, in practice, usually extend

frame is shut as shown in Figure 1.

The panel-carrying frame is held shut by a resilient plastics latching strip 39. The strip 39 is an elongate L-shaped strip which is pop-rivetted at intervals along its length to the underside of the back region of the panel-carrying frame bottom rail 16. When the panel-carrying frame is shut, the free edge 41 of the resilient plastics latching strip 39 snaps into engagement with a channel 42 running along the front bottom edge of the main box frame bottom rail 12.

The panel-carrying frame can be opened by pivotting it upwardly about the mating joint 33, 34 and away from the front of the main box frame. To do this, the operator grasps the bottom face 29 of the bottom rail 16 and pulls the whole frame upwardly and outwardly. The free end of the resilient latching strip 39 deforms until the strip snaps over and out of engagement with the front of the channel 42, and the entire panel-carrying frame pivots about the upturned radius edge 33. For a very long panel-carrying frame, the bottom edge may have to be opened a portion at a time, and there is a danger of the initially-opened portion snapping shut again before the opposite extreme portion has been opened. The latching strip 39 is thus ribbed along its back surface, as Figure 1c shows clearly, to stop this inadvertently happening: the ribs engage the front edge of the channel 42 once the panel-carrying frame has been opened, and resist any tendency of the resilient strip 39 to ride back over the front edge of the channel 42 into its Figure 1 position until it is positively snapped home again by pressure from the operator once work on the interior of the box is finished.

A chain, not shown, would normally limit the opening of the panel-carrying frame to an angle of say 45° or 60° with the front of the main box frame. If it becomes necessary to lift the panel-carrying frame right off the main box frame, the chain is unhooked, the panel-carrying frame is pivotted right up away from the front of the main box frame, and the upturned flange 32 with its radiused edge 33 will eventually come right out of engagement with the radiused channel 34 to enable the panel-carrying frame to be lifted away from the front of the main box frame.

To re-engage the panel-carrying frame, and shut the box again, the sequence of steps just described is reversed.

There is sometimes a tendency for the weight of the panels hanging from the ledge 21 to buckle the top rail 15 of the panel-carrying frame about its back edge 43. For that reason, the aluminium extrusion from which the rail 15 is cut is deliberately thickened in the region of the edge 43 and is internally radiused in an attempt to resist ay such buckling tendency.

The box shown in Figure 2 is essentially similar in its inventive features to that of Figure 1. However it has only a single panel-carrying frame. The face of the box opposite to that panel-carrying frame is secured direct to the wall of a building. The stand-off bracket 19 is not used. The interior of the box incorporates a support post 44 to take the weight of the box, the post 44 is itself held in a vertical box-section post 45 fixed to the back of the main box frame, and a reflector panel 46 is also incorporated into the assembly between the back face of the main box frame and the wall to which the frame is secured. As shown in Figure 2, the back faces of the top and bottom rails of the main box frame (and also the side rails, not illustrated) are recessed to accommodate the reflector panel.

With a double-faced box, such as that illustrated in Figure 1, it is not possible to incorporate reflector panels. The construction of Figure 1 is therefore especially advantageous, because the provision of the channel 31 between each face of the main box frame, and the adjacent panel-carrying frame, effectively spaces the panel-carrying frame farther from the neon tubes in the centre of the main box frame than would otherwise be the case; and any undesirable striated effects on illumination of the panel are lessened if not altogether avoided.

CLAIMS

1. A sign box comprising a main box frame closed by a panel-carrying frame or by two opposed panel-carrying frames, and characterised in that the bottom edge of the front face of the top rail of the, or a, panel-carrying frame is formed with an overhang to encourage rain or condensation striking the front face to drip off the overhang rather than running onto and down the panel when the sign is in use.

2. A sign box according to Claim 1 and in which the overhang is radiused around its edge.

3. A sign box according to Claim 1 or Claim 2 in which the overhang is radiused as it travels back in towards the panel and blends with the panel-supporting ledge of the panel-carrying frame.

4. A sign box according to any of the preceding Claims and in which a relatively shallow channel runs along the top face of the top rail, in the region bounded by the front and back faces of the rail, to lead water off the top face of the panel-carrying frame.

5. A sign box according to any of the preceding Claims and in which a top-rail drainage channel is defined between the back face of the top rail of the panel-carrying frame, and a turned-up flange which projects from that face to mate with the front of the main box frame, the configuration of the mating fit between the frames being such that any water entering said drainage channel and attempting to find its way from there into the box is confronted with, in succession, a overhang on the turned-up edge of said flange, and a resiliently deformable seal compressed between the two frames.

6. A sign box according to Claim 5 and in which the overhang on the flange edge forms part of a radiused edge which mates with a similarly-radiused recess running inside the front of the main box frame.

7. A sign box according to any of the preceding Claims and in which the panel-carrying frame pivots open to give access to the interior of the box, for example pivoting about the said radiused edge of Claim 6, and characterised in that a resilient latching strip projects from the back face of the bottom rail of the panel-carrying frame to snap into engagement with a cooperating projection on the front of the

main box frame when the two frames mate to close the box.

8. A sign box according to Claim 7 and in which the latch is ribbed or notched on its back surface to prevent the panel-carrying frame from inadvertently snapping shut again once the frame has pivoted open.

9. A sign box according to Claim 7 and Claim 8 and in which the or each resilient latching strip is formed of material different from the frame and is initially formed separately from the frame and then secured to the frame.

10. A sign box according to any of the preceding Claims and in which the top rail of the panel-carrying fame is internally radiused along its back edge and is thickened in the region of that radius in an attempt to resist any tendency of the frame to buckle about the back edge.

11. A sign box substantially as described herein with reference to and as illustrated in Figures 1 to 1C of the accompanying drawings.

12. A sign box according to Claim 11 and modified substantially as described herein with reference to and as illustrated in Figure 2 of the accompanying drawings.

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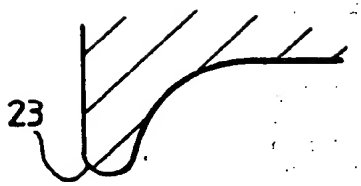

Fig.1A.

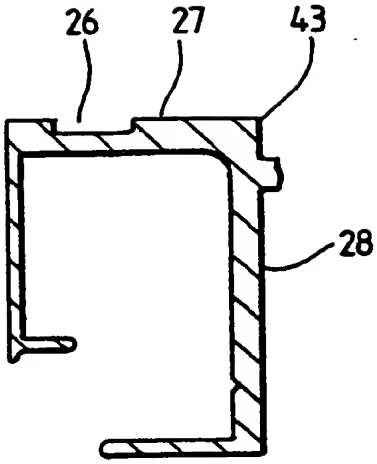

Fig.1B.

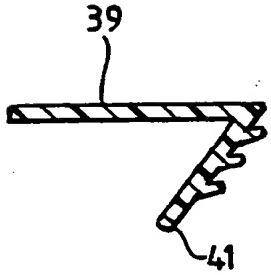

Fig.1C.

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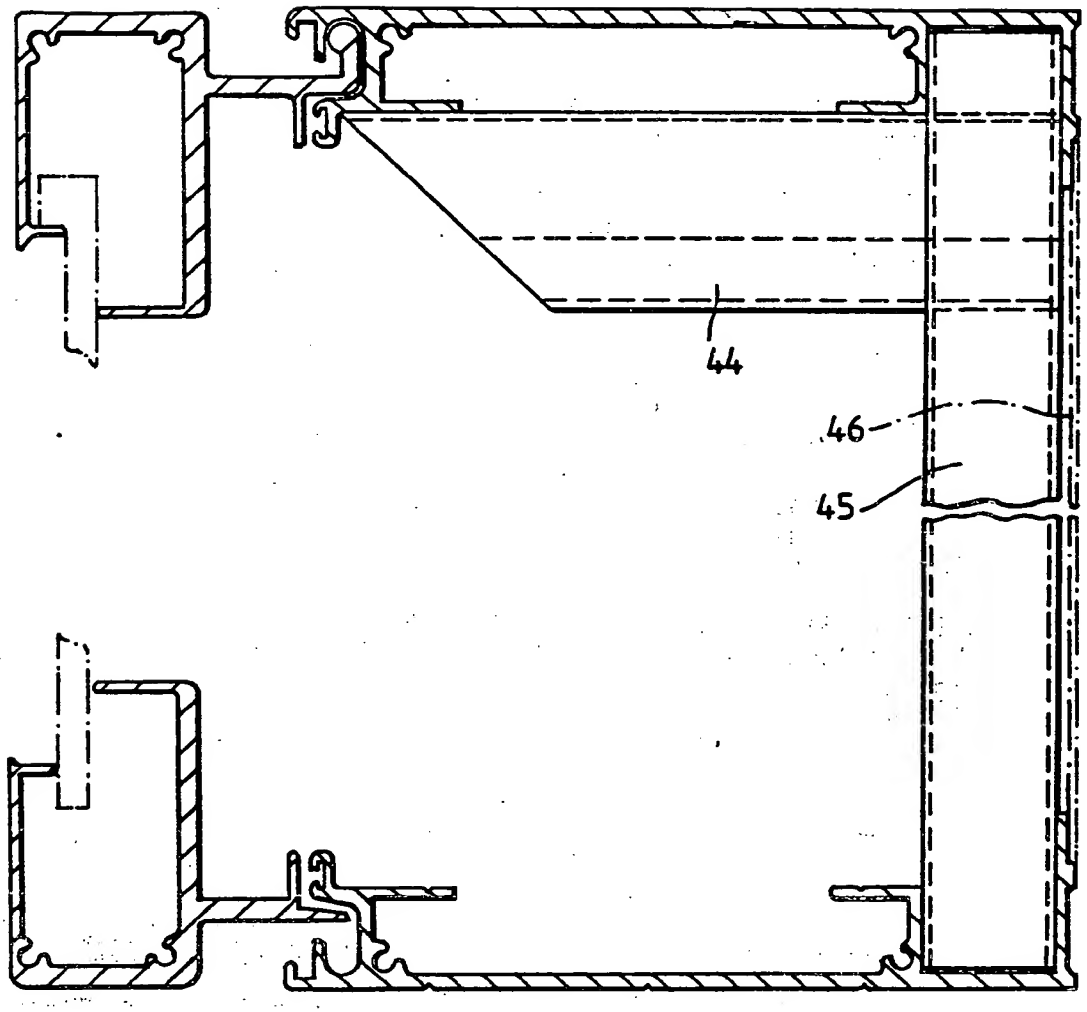

Fig.2.